Claims

1. A binding molecule comprising at least one antigen binding site, comprising in sequence the hypervariable regions CDR1, CDR2 and CDR3, said CDR1 having the amino acid sequence Asn-Tyr-Ile-Ile-His (NYIIH), said CDR2 having the amino acid sequence Tyr-Phe-Asn-Pro-Tyr-Asn-His-Gly-Thr-Lys-Tyr-Asn-Glu-Lys-Phe -Lys-Gly (YFNPYNHGTKYNEKFKG) and said CDR3 having the amino acid sequence Ser-Gly-Pro-Tyr-Ala-Trp-Phe-Asp-Thr (SGPYAWFDT).

2. A binding molecule according to claim 1 comprising
   a) a first domain comprising in sequence the hypervariable regions CDR1, CDR2 and CDR3, said CDR1 having the amino acid sequence Asn-Tyr-Ile-Ile-His (NYIIH), said CDR2 having the amino acid sequence Tyr-Phe-Asn-Pro-Tyr-Asn-His-Gly-Thr-Lys-Tyr-Asn-Glu-Lys-Phe -Lys-Gly (YFNPYNHGTKYNEKFKG) and said CDR3 having the amino acid sequence Ser-Gly-Pro-Tyr-Ala-Trp-Phe-Asp-Thr (SGPYAWFDT); and
   b) a second domain comprising in sequence the hypervariable regions CDR1', CDR2' and CDR3', said CDR1' having the amino acid sequence Arg-Ala-Ser-Gln-Asn-Ile-Gly-Thr-Ser-Ile-Gln (RASQNIGTSIQ), CDR2' having the amino acid sequence Ser-Ser-Ser-Glu-Ser-Ile-Ser (SSSESIS) and CDR3' having the amino acid sequence Gln-Gln-Ser-Asn-Thr-Trp-Pro-Phe-Thr (QQSNTWPFT).

3. A binding molecule according to claim 1, which is a chimeric or humanised monoclonal antibody.

4. A binding molecule according to claim 1, comprising a polypeptide of SEQ ID NO:1 and/or a polypeptide of SEQ ID NO:2.

5. A binding molecule according to claim 1, comprising a polypeptide of SEQ ID NO:3 and/or a polypeptide of SEQ ID NO:4.

6. A binding molecule according to claim 4 which is a chimeric monoclonal antibody.

7. A binding molecule which is a humanised antibody comprising a polypeptide of SEQ ID NO:9 or of SEQ ID NO:10 and a polypeptide of SEQ ID NO:7 or of SEQ ID NO:8.

8. A binding molecule which is a humanised antibody comprising
   - a polypeptide of SEQ ID NO:9 and a polypeptide of SEQ ID NO:7,
   - a polypeptide of SEQ ID NO:9 and a polypeptide of SEQ ID NO:8,
   - a polypeptide of SEQ ID NO:10 and a polypeptide of SEQ ID NO:7, or
   - a polypeptide of SEQ ID NO:10 and a polypeptide of SEQ ID NO:8.

9. Isolated polynucleotides comprising polynucleotides encoding a binding molecule according to claim 1.

10. Polynucleotides according to claim 9 encoding the amino acid sequence of CDR1, CDR2 and CDR3, according to said CDR1 having the amino acid sequence Asn-Tyr-Ile-Ile-His (NYIIH), said CDR2 having the amino acid sequence Tyr-Phe-Asn-Pro-Tyr-Asn-His-Gly-Thr-Lys-Tyr-Asn-Glu-Lys-Phe -Lys-Gly (YFNPYNHGTKYNEKFKG) and said CDR3 having the amino acid sequence Ser-Gly-Pro-Tyr-Ala-Trp-Phe-Asp-Thr (SGPYAWFDT).

11. Polynucleotides comprising a polynucleotide of SEQ ID NO: 5 and/or a polynucleotide of SEQ ID NO: 6.

12. Polynucletides comprising polynucleotides encoding a polypeptide of SEQ ID NO:7 or SEQ ID NO:8 and a polypeptide of SEQ ID NO:9 or SEQ ID NO:10.

13. Polynucleotides comprising a polynucleotide of SEQ ID NO:11 or of SEQ ID NO:12 and a polynucleotide of SEQ ID NO:13 or a polynucleotide of SEQ ID NO:14.

14. An expression vector comprising polynucleotides according to claim 9.

15. An expression system comprising a polynucleotide according to claim 9, wherein said expression system or part thereof is capable of producing a binding molecule comprising at least one antigen binding site, comprising in sequence the hypervariable regions CDR1, CDR2 and CDR3, said CDR1 having the amino acid sequence Asn-Tyr-Ile-Ile-His (NYIIH), said CDR2 having the amino acid sequence Tyr-Phe-Asn-Pro-Tyr-Asn-His-Gly-Thr-Lys-Tyr-Asn-Glu-Lys-Phe -Lys-Gly (YFNPYNHGTKYNEKFKG) and

said CDR3 having the amino acid sequence Ser-Gly-Pro-Tyr-Ala-Trp-Phe-Asp-Thr (SGPYAWFDT), when said expression system or part thereof is present in a compatible host cell.

16. An isolated host cell which comprises an expression system according to claim 15.

17. Use of a molecule or of a humanised antibody according to claim 1 as a pharmaceutical.

18. Use according to claim 17 in the treatment and/or prophylaxis of autoimmune diseases, transplant rejection, psoriasis, inflammatory bowel disease and allergies.

19. A pharmaceutical composition comprising a molecule or a humanised antibody according to claim 1 in association with at least one pharmaceutically acceptable carrier or diluent.

20. A method of treatment and/or prophylaxis of diseases associated with autoimmune diseases, transplant rejection, psoriasis, inflammatory bowel disease and allergies comprising administering to a subject in need of such treatment and/or prophylaxis an effective amount of a molecule or a humanised antibody according to claim 1.

21. Use of a binding molecule having a binding specificity for both CD45RO and CD45RB in medicine.

22. The use according to claim 21, wherein the binding molecule is a chimeric, a humanised or a fully human monoclonal antibody.

23. The use according to claim 21, wherein the binding molecule binds to a CD45RO isoform with a dissociation constant (Kd) <15nM.

24. The use according to claim 21, wherein the binding molecule binds to a CD45RB isoform with a dissociation constant (Kd) <15nM.

25. The use according to claim 21, wherein the binding molecule binds CD45 isoforms which

- include the A and B epitopes, but not the C epitope of the CD45 molecule; and/or
- include the B epitope, but not the A and not the C epitope of the CD45 molecule; and/or
- isoforms which do not include any one of the A, B or C epitopes of the CD45 molecule.

26. The use according to claim 21, wherein the binding molecule does not bind CD45 isoforms which
- include all of the A, B and C epitopes of the CD45 molecule; and/or
- include both the B and C epitopes, but not the A epitope of the CD45 molecule.

27. The use according to claim 21, wherein the binding molecule binds to its target epitope on PEER cells, and wherein said binding is with a Kd<15nM.

28. Polynucleotides encoding the amino acid sequence of CDR1', CDR2' and CDR3', according to said CDR1' having the amino acid sequence Arg-Ala-Ser-Gln-Asn-Ile-Gly-Thr-Ser-Ile-Gln (RASQNIGTSIQ), CDR2' having the amino acid sequence Ser-Ser-Ser-Glu-Ser-Ile-Ser (SSSESIS) and CDR3' having the amino acid sequence Gln-Gln-Ser-Asn-Thr-Trp-Pro-Phe-Thr (QQSNTWPFT).

29. An expression system comprising a polynucleotide according to claim 10, wherein said expression system or part thereof is capable of producing a binding molecule comprising at least one antigen binding site, comprising in sequence the hypervariable regions CDR1, CDR2 and CDR3, said CDR1 having the amino acid sequence Asn-Tyr-Ile-Ile-His (NYIIH), said CDR2 having the amino acid sequence Tyr-Phe-Asn-Pro-Tyr-Asn-His-Gly-Thr-Lys-Tyr-Asn-Glu-Lys-Phe -Lys-Gly (YFNPYNHGTKYNEKFKG) and said CDR3 having the amino acid sequence Ser-Gly-Pro-Tyr-Ala-Trp-Phe-Asp-Thr (SGPYAWFDT), when said expression system or part thereof is present in a compatible host cell.

30. An expression system comprising a polynucleotide according to claim 11, wherein said expression system or part thereof is capable of producing a binding molecule comprising at least one antigen binding site, comprising in sequence the hypervariable regions CDR1, CDR2 and CDR3, said CDR1 having the amino acid sequence Asn-Tyr-Ile-Ile-His (NYIIH), said CDR2 having the amino acid sequence Tyr-Phe-Asn-Pro-Tyr-Asn-His-Gly-Thr-Lys-Tyr-Asn-Glu-Lys-Phe -Lys-Gly (YFNPYNHGTKYNEKFKG) and said CDR3

having the amino acid sequence Ser-Gly-Pro-Tyr-Ala-Trp-Phe-Asp-Thr (SGPYAWFDT), when said expression system or part thereof is present in a compatible host cell.

31. An expression system comprising a polynucleotide according to claim 12, wherein said expression system or part thereof is capable of producing a binding molecule comprising at least one antigen binding site, comprising in sequence the hypervariable regions CDR1, CDR2 and CDR3, said CDR1 having the amino acid sequence Asn-Tyr-Ile-Ile-His (NYIIH), said CDR2 having the amino acid sequence Tyr-Phe-Asn-Pro-Tyr-Asn-His-Gly-Thr-Lys-Tyr-Asn-Glu-Lys-Phe -Lys-Gly (YFNPYNHGTKYNEKFKG) and said CDR3 having the amino acid sequence Ser-Gly-Pro-Tyr-Ala-Trp-Phe-Asp-Thr (SGPYAWFDT), when said expression system or part thereof is present in a compatible host cell.

32. An expression system comprising a polynucleotide according to claim 13, wherein said expression system or part thereof is capable of producing a binding molecule comprising at least one antigen binding site, comprising in sequence the hypervariable regions CDR1, CDR2 and CDR3, said CDR1 having the amino acid sequence Asn-Tyr-Ile-Ile-His (NYIIH), said CDR2 having the amino acid sequence Tyr-Phe-Asn-Pro-Tyr-Asn-His-Gly-Thr-Lys-Tyr-Asn-Glu-Lys-Phe -Lys-Gly (YFNPYNHGTKYNEKFKG) and said CDR3 having the amino acid sequence Ser-Gly-Pro-Tyr-Ala-Trp-Phe-Asp-Thr (SGPYAWFDT), when said expression system or part thereof is present in a compatible host cell.

33. An expression system comprising a polynucleotide according to claim 28, wherein said expression system or part thereof is capable of producing a binding molecule of comprising at least one antigen binding site, comprising in sequence the hypervariable regions CDR1, CDR2 and CDR3, said CDR1 having the amino acid sequence Asn-Tyr-Ile-Ile-His (NYIIH), said CDR2 having the amino acid sequence Tyr-Phe-Asn-Pro-Tyr-Asn-His-Gly-Thr-Lys-Tyr-Asn-Glu-Lys-Phe -Lys-Gly (YFNPYNHGTKYNEKFKG) and said CDR3 having the amino acid sequence Ser-Gly-Pro-Tyr-Ala-Trp-Phe-Asp-Thr (SGPYAWFDT), when said expression system or part thereof is present in a compatible host cell.